MORPHOLOGICAL HETEROGENEITY OF MICROVASCULAR ENDOTHELIAL CELLS (MVEC) DERIVED FROM BOVINE COROPORA LUTEA

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Endothelial cells of the microvascular tree are obtained from tissue mince which is enzymatically treated. Enzyme perfusion of microvessels appears to be just as good. The source of the isolated MVEC represents arterioles, capillaries, and venules. There is little concern whether the cells of different origin express a separate morphology in culture because endothelial cells are know to modulate their morphology easily. We were unaware of this state of knowing five years ago when we started to work with MVEC. Meanwhile we have come to know what is meant as high plasticity of endothelial cells. Still in the present time, we continue to believe that MVEC cultures of different and stable morphology can be established from the corpus luteum of the cow. The ability to see and to understand the nature of our work is intended to pass over by informing about the following items: (1) Purification and growth of MVEC in culture. (2) Criteria of MVEC. (3) Stability of MVEC. (4) Differential diagnosis. (5) Significant. Basic information is given as follows.

Purification: Cells released by mincing bovine corpus luteum were crudely purified by continuous Percoll gradient. A low number of viable cells was obtained which grew in DMEM and Ham F12, mixed 1:1 and containing 15mM Hepes, 22 mM $NaHCO_3$, 5% fetal calf serum. 100 μg crude endothelial mitogen/ml culture medium was added once at the day of seeding. Cell growth under semiclonal condition, "weeding", and "colony transfer" were further steps of purification leading to pure confluent cultures of five separate morphologies 42 days after cell plating. *Criteria:* The five different phenotypes showed the common "MVEC markers" as there were: contact-inhibited growth, tubule formation, immunolocalization of factor VIII R antigen, of α_2-acetylated low density lipoprotein. *Stability:* Each phenotype displayed a particular behavior of the following different morphological parameters: Cytoskeleton (actin filaments, intermediate filaments, microtubules), cell-cell adhesion molecules (NCAM, NCAD, ECAD). Class I and II molecules of the major histocompatibility complex expressed under interferon-γ treatment were quantified by flow cytometric analysis. *Differential diagnosis* was based upon mature consideration of well-know facts applied to cells other than MVEC. The morphological heterogeneity of MVEC may *signify* that MVEC vary in pattern of distribution within the microvascular bed.

Source: https://www.industrydocuments.ucsf.edu/docs/psmv0000